Occurrence of *Clostridium difficile* in edible bivalve molluscs in Spain

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**Statement of the Problem:** Bivalve molluscs are a frequent source of viral and bacterial pathogens due to, among other factors, their filtering nature. Toxigenic *C. difficile* has been isolated from seafood samples with potential implications of transfer to humans.

**Purpose:** The purpose of this study is to assess the occurrence of *C. difficile* as well as bacterial indicators (*Salmonella* spp, *Escherichia coli* and reducers) in edible bivalve molluscs in Spain.

**Methodology & Theoretical Orientation:** A total of 129 samples, consisting in 123 samples of mussels (*Mytilus galloprovincialis*) and 6 oysters (*Crassostrea cornucopiae*), were purchased from outlets in the city of Murcia (southeast Spain). The isolation of *C. difficile* strains was carried out using enrichment broth supplemented with sodium taurocholate followed by ethanol shock, prior to the culture on a selective media. The identification was carried out detecting Tpi gene using molecular techniques. The isolation and enumeration of bacterial indicators were investigated according to the ISO norm.

**Findings:** *C. difficile* was isolated from 8.94% (11/123) of the mussels investigated, what supposes 20.8% (5/24) from Mediterranean Sea and 6.45% (6/93) from Northwest Atlantic. No *C. difficile* was detected in modified atmosphere packs or in cooked mussels. All oyster samples were negative for *C. difficile*. About the associated flora, *Clostridium* sulphite reducers appeared in 31% (40/129) of the analysed samples and *E. coli* appeared in 1.5% (2/129). *Salmonella* spp. was not present in any sample. These bacterial indicators were in accordance with the current legal requirements.

**Conclusion & Significance:** These findings indicate that edible bivalve molluscs could be a potential source of *C. difficile*, with a slightly higher isolation rates than other studies. The intake of raw or poorly cooked contaminated bivalve molluscs with its spores could represent a risk for human health.

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**Biography**

Carmen Candel Perez is a candidate for a PhD in Food Science And Nutrition at Murcia University, Murcia, Spain. Her research interest involves the occurrence of *C. difficile* in food products.

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